

DESCRIPTION:

Robust® Tablets contain rosuvastatin as active ingredient which belongs to a group of medicines called statins.
Inactive ingredients: Lactose, croscopolone, tribasic calcium phosphate, microcrystalline cellulose, magnesium stearate, red iron oxide (E172), hypromellose, triacetin, titanium dioxide.

PHARMACOLOGY:

Rosuvastatin is a selective and competitive inhibitor of HMG-CoA reductase, the rate-limiting enzyme that converts 3-hydroxy-3-methylglutaryl coenzyme A to mevalonate, a precursor for cholesterol. The primary site of action of rosuvastatin is the liver, the target organ for cholesterol lowering.
 Rosuvastatin increases the number of hepatic LDL receptors on the cell-surface, enhancing uptake and catabolism of LDL and it inhibits the hepatic synthesis of VLDL, reducing the total number of VLDL and LDL particles.
 Maximum rosuvastatin plasma concentrations are achieved approximately 5 hours after oral administration. The absolute bioavailability is approximately 20%. Rosuvastatin is taken up extensively by the liver which is the primary site of cholesterol synthesis and LDL-C clearance. The volume of distribution of rosuvastatin is approximately 134 L. Approximately 90% of rosuvastatin is bound to plasma proteins, mainly to albumin. Rosuvastatin undergoes limited metabolism (approximately 10%). Approximately 90% of the rosuvastatin dose is excreted unchanged in the faeces (consisting of absorbed and non-absorbed active substance) and the remaining part is excreted in urine.

INDICATIONS:

Treatment of hypercholesterolaemia:
 Adults, adolescents and children aged 10 years or older with primary hypercholesterolaemia (type IIa including heterozygous familial hypercholesterolaemia) or mixed dyslipidaemia (type IIb) as an adjunct to diet when response to diet and other non-pharmacological treatments (e.g. exercise, weight reduction) is inadequate.
 Homozygous familial hypercholesterolaemia as an adjunct to diet and other lipid lowering treatments (e.g. LDL apheresis) or if such treatments are not appropriate.

Prevention of cardiovascular events:

Prevention of major cardiovascular events in patients who are estimated to have a high risk for a first cardiovascular event, as an adjunct to correction of other risk factors.

CONTRAINDICATIONS:

Rosuvastatin is contraindicated:
 - In patients with hypersensitivity to rosuvastatin or to any of the excipients.
 - In patients with active liver disease including unexplained, persistent elevations of serum transaminases and any serum transaminase elevation exceeding 3x the upper limit of normal (ULN).
 - In patients with severe renal impairment (creatinine clearance < 30 ml/min).
 - In patients with myopathy.
 - In patients receiving concomitant ciclosporin.
 - During pregnancy and lactation and in women of childbearing potential not using appropriate contraceptive measures.
 The 40 mg dose is contraindicated in patients with pre-disposing factors for myopathy/rhabdomyolysis. Such factors include:
 - Moderate renal impairment (creatinine clearance < 60 ml/min).
 - Hypothyroidism.
 - Personal or family history of hereditary muscular disorders.
 - Previous history of muscular toxicity with another HMG-CoA reductase inhibitor or fibrate.
 - Alcohol abuse.
 - Situations where an increase in plasma levels may occur.
 - Asian patients.
 - Concomitant use of fibrates.

SIDE EFFECTS:

The adverse events seen with rosuvastatin are generally mild and transient.
 The frequencies of adverse events are ranked according to the following: Common (>1/100, <1/10); Uncommon (>1/1,000, <1/100); Rare (>1/10,000, <1/1000); Very rare (<1/10,000); Not known (cannot be estimated from the available data).

Immune system disorders: Rare: hypersensitivity reactions including angioedema.

Endocrine disorders: Common: diabetes mellitus¹.

Nervous system disorders: Common: headache, dizziness.

Gastrointestinal disorders: Common: constipation, nausea, abdominal pain. Rare: pancreatitis.

Skin and subcutaneous tissue disorders: Uncommon: pruritus, rash and urticaria.

Musculoskeletal, connective tissue and bone disorders: Common: myalgia. Rare: myopathy (including myositis) and rhabdomyolysis.

General disorders: Common: asthenia

¹ Observed mostly in patients with fasting glucose from 5.6 to 6.9 mmol/L.
 As with other HMG-CoA reductase inhibitors, the incidence of adverse drug reactions tends to be dose dependent.

Renal effects: Proteinuria, detected by dipstick testing and mostly tubular in origin, has been observed in patients treated with rosuvastatin. Proteinuria observed more frequently in patients treated with 40 mg than those treated with 10 and 20 mg. In most cases, proteinuria decreases or disappears spontaneously on continued therapy.
 No causal relation between proteinuria and acute or progressive renal disease is identified yet.
 Haematuria is observed in patients treated with Rosuvastatin.

Skeletal muscle effects: Effects on skeletal muscle e.g. myalgia, myopathy (including myositis) and, rarely, rhabdomyolysis with and without acute renal failure have been reported in rosuvastatin-treated patients with all doses and in particular with doses > 20 mg. A dose-related increase in CK levels has been observed in patients taking rosuvastatin; the majority of cases were mild, asymptomatic and transient. If CK levels are elevated (> 5xULN), treatment should be discontinued.

Liver effects: As with other HMG-CoA reductase inhibitors, a dose-related increase in transaminases has been observed in a small number of patients taking rosuvastatin; the majority of cases were mild, asymptomatic and transient.

Post marketing experience: In addition to the above, the following adverse events have been reported during post marketing experience for rosuvastatin:
Nervous system disorders: Very rare: polyneuropathy, memory loss.
Respiratory, thoracic and mediastinal disorders: Not known: cough, dyspnoea.
Gastrointestinal disorders: Not known: diarrhoea.

Hepatobiliary disorders: Very rare: jaundice, hepatitis; rare: increased transaminases.

Skin and subcutaneous tissue disorders: Not known: Stevens-Johnson syndrome.

Musculoskeletal disorders: Very rare: arthralgia.

Renal disorders: Very rare: haematuria.

General disorders and administration site conditions: Not known: oedema.

The following adverse events have been reported with some statins:
 Depression, sleep disturbances, including insomnia and nightmares, sexual dysfunction, exceptional cases of interstitial lung disease, especially with long term therapy.
 The reporting rates for rhabdomyolysis, serious renal events and serious hepatic events (consisting mainly of increased hepatic transaminases) are higher at the 40 mg dose.

Paediatric population: Creatine kinase elevations > 10xULN and muscle symptoms following exercise or increased physical activity are observed more frequently in children and adolescents compared to adults. In other respects, the safety profile of rosuvastatin is similar in children and adolescents compared to adults.

WARNINGS AND PRECAUTIONS:

Renal Effects:
 Proteinuria, detected by dipstick testing and mostly tubular in origin, has been observed in patients treated with higher doses of rosuvastatin, in particular 40 mg, where it was transient or intermittent in most cases. Proteinuria has not been shown to be predictive of acute or progressive renal disease. The reporting rate for serious renal events in post-marketing use is higher at the 40 mg dose. An assessment of renal function should be considered during routine follow-up of patients treated with a dose of 40 mg.

Skeletal Muscle Effects:
 Effects on skeletal muscle e.g. myalgia, myopathy and, rarely, rhabdomyolysis have been reported in rosuvastatin-treated patients with all doses and in particular with doses > 20 mg. Very rare cases of rhabdomyolysis have been reported with the use of ezetimibe in combination with HMG-CoA reductase inhibitors. A pharmacodynamic interaction cannot be excluded and caution should be exercised with their combined use.

As with other HMG-CoA reductase inhibitors, the reporting rate for rhabdomyolysis associated with rosuvastatin in post-marketing use is higher at the 40 mg dose.

Creatine Kinase Measurement
 Creatine Kinase (CK) should not be measured following strenuous exercise or in the presence of a plausible alternative cause of CK increase which may confound interpretation of the result. If CK levels are significantly elevated at baseline (>5xULN) a confirmatory test should be carried out within 5 – 7 days. If the repeat test confirms a baseline CK >5xULN, treatment should not be started.

Before Treatment
 Rosuvastatin, as with other HMG-CoA reductase inhibitors, should be prescribed with caution in patients with pre-disposing factors for myopathy/rhabdomyolysis. Such factors include:

- Renal impairment.
- Hypothyroidism.
- Personal or family history of hereditary muscular disorders.
- Previous history of muscular toxicity with another HMG-CoA reductase inhibitor or fibrate.
- Alcohol abuse.
- Age > 70 years.
- Situations where an increase in plasma levels may occur.
- Concomitant use of fibrates.

In such patients the risk of treatment should be considered in relation to possible benefit and clinical monitoring is recommended. If CK levels are significantly elevated at baseline (>5xULN) treatment should not be started.

Whilst on Treatment
 Patients should be asked to report inexplicable muscle pain, weakness or cramps immediately, particularly if associated with malaise or fever. CK levels should be measured in these patients. Therapy should be discontinued if CK levels are markedly elevated (>5xULN) or if muscular symptoms are severe and cause daily discomfort (even if CK levels are ≤5x ULN). If symptoms resolve and CK levels return to normal, then consideration should be given to re-introducing rosuvastatin or an alternative HMG-CoA reductase inhibitor at the lowest dose with close monitoring. Routine monitoring of CK levels in asymptomatic patients is not warranted.

There is no evidence of increased skeletal muscle effects in the small number of patients dosed with rosuvastatin and concomitant therapy. However, an increase in the incidence of myositis and myopathy has been seen in patients receiving other HMG-CoA reductase inhibitors together with fibric acid derivatives including gemfibrozil, ciclosporin, nicotinic acid, azole antifungals, protease inhibitors and macrolide antibiotics. Gemfibrozil increases the risk of myopathy when given concomitantly with some HMG-CoA reductase inhibitors. Therefore, the combination of rosuvastatin and gemfibrozil is not recommended. The benefit of further alterations in lipid levels by the combined use of rosuvastatin with fibrates or niacin should be carefully weighed against the potential risks of such combinations. The 40 mg dose is contraindicated with concomitant use of a fibrate.

Rosuvastatin should not be used in any patient with an acute, serious condition suggestive of myopathy or predisposing to the development of renal failure secondary to rhabdomyolysis (e.g. sepsis, hypotension, major surgery, trauma, severe metabolic, endocrine and electrolyte disorders; or uncontrolled seizures).

Liver Effects

As with other HMG-CoA reductase inhibitors, rosuvastatin should be used with caution in patients who consume excessive

quantities of alcohol and/or have a history of liver disease.

It is recommended that blood tests be carried out prior to, and 3 months following, the initiation of treatment. Rosuvastatin should be discontinued or the dose reduced if the level of serum transaminases is greater than 3 times the upper limit of normal. The reporting rate for serious hepatic events (consisting mainly of increased hepatic transaminases) in post-marketing use is higher at the 40 mg dose.
 In patients with secondary hypercholesterolaemia caused by hypothyroidism or nephrotic syndrome, the underlying disease should be treated prior to initiating therapy with rosuvastatin.

Pharmacokinetic studies show an increase in exposure in asian subjects compared with caucasians.

Protease inhibitors
 The concomitant use with protease inhibitors is not recommended.

Lactose intolerance
 Patients with rare hereditary problems of galactose intolerance, the lapp lactase deficiency or glucose-galactose malabsorption should not take this medicine.

Interstitial lung disease
 Exceptional cases of interstitial lung disease have been reported with some statins, especially with long term therapy. Presenting features can include dyspnoea, non-productive cough and deterioration in general health (fatigue, weight loss and fever). If it is suspected a patient has developed interstitial lung disease, statin therapy should be discontinued.

Diabetes Mellitus
 In patients with fasting glucose 5.6 to 6.9 mmol/L, treatment with rosuvastatin has been associated with an increased risk of diabetes mellitus.

Paediatric population
 The evaluation of linear growth (height), weight, BMI (body mass index), and secondary characteristics of sexual maturation by Tanner staging in paediatric patients 10 to 17 years of age taking rosuvastatin is limited to a one-year period. No effect on growth, weight, BMI or sexual maturation is detected. The experience in children and adolescent patients is limited and the long-term effects of rosuvastatin (> 1 year) on puberty are unknown.

CK elevations > 10 x ULN and muscle symptoms following exercise or increased physical activity are observed more frequently in children and adolescents receiving rosuvastatin compared to adults.

Robust® tablets contain lactose. If patient has been told by the doctor that he has intolerance to some sugars, patient should contact his doctor before taking this medicinal product

Pregnancy and lactation:
 Rosuvastatin is contraindicated in pregnancy and lactation.
 Women of child bearing potential should use appropriate contraceptive measures.

Since cholesterol and other products of cholesterol biosynthesis are essential for the development of the foetus, the potential risk from inhibition of HMG-CoA reductase outweighs the advantage of treatment during pregnancy. Animal studies provide limited evidence of reproductive toxicity. If a patient becomes pregnant during use of this product, treatment should be discontinued immediately.

Rosuvastatin is excreted in the milk of rats. There are no data with respect to excretion in milk in humans.

Effects on ability to drive and use machines:

Studies to determine the effect of rosuvastatin on the ability to drive and use machines have not been conducted. However, based on its pharmacodynamic properties, rosuvastatin is unlikely to affect this ability. When driving vehicles or operating machines, it should be taken into account that dizziness may occur during treatment.

DRUG INTERACTIONS:

Ciclosporin: During concomitant treatment with rosuvastatin and ciclosporin, rosuvastatin AUC values are on average 7 times higher than normal.
 Concomitant administration did not affect plasma concentrations of ciclosporin.

Vitamin K antagonists: As with other HMG-CoA reductase inhibitors, the initiation of treatment or dosage up-titration of rosuvastatin in patients treated concomitantly with vitamin K antagonists (e.g. warfarin or another coumarin anticoagulant) may result in an increase in International Normalised Ratio (INR). Discontinuation or down-titration of rosuvastatin may result in a decrease in INR. In such situations, appropriate monitoring of INR is desirable.

Ezetimibe: Concomitant use of rosuvastatin and ezetimibe resulted in no change to AUC or Cmax for either drug. However, a pharmacodynamic interaction, in terms of adverse effects, between rosuvastatin and ezetimibe cannot be ruled out.

Gemfibrozil and other lipid-lowering products: Concomitant use of rosuvastatin and gemfibrozil resulted in a 2-fold increase in rosuvastatin Cmax and AUC.
 Based on data from specific interaction studies no pharmacokinetic relevant interaction with fenofibrate is expected, however a pharmacodynamic interaction may occur. Gemfibrozil, fenofibrate, other fibrates and lipid lowering doses (> or equal to 1g/day) of niacin (nicotinic acid) increase the risk of myopathy when given concomitantly with HMG-CoA reductase inhibitors, probably because they can produce myopathy when given alone. The 40 mg dose is contraindicated with concomitant use of a fibrate. These patients should also start with the 5 mg dose.

Protease inhibitors: Although the exact mechanism of interaction is unknown, concomitant protease inhibitor use may strongly increase rosuvastatin exposure. Concomitant use of rosuvastatin in HIV patients receiving protease inhibitors is not recommended.

Antacid: The simultaneous dosing of rosuvastatin with an antacid suspension containing aluminium and magnesium hydroxide resulted in a decrease in rosuvastatin plasma concentration of approximately 50%. This effect was mitigated when the antacid was dosed 2 hours after rosuvastatin. The clinical relevance of this interaction has not been studied.

Erythromycin: Concomitant use of rosuvastatin and erythromycin resulted in a 20% decrease in AUC(0-t) and a 30% decrease in Cmax of rosuvastatin. This interaction may be caused by the increase in gut motility caused by erythromycin.

Oral contraceptive hormone replacement therapy (HRT): Concomitant use of rosuvastatin and an oral contraceptive resulted in an increase in ethinyl estradiol and norgestrel AUC of 26% and 34%, respectively. These increased plasma levels should be considered when selecting oral contraceptive doses. There are no pharmacokinetic data available in subjects taking concomitant rosuvastatin and HRT and therefore a similar effect cannot be excluded. However, the combination has been extensively used in women and was well tolerated.

Other medicinal products: No clinically relevant interaction with digoxin is expected.
Other P450 enzymes: Rosuvastatin is neither an inhibitor nor an inducer of cytochrome P450 isoenzymes. In addition, rosuvastatin is a poor substrate for these isoenzymes. No clinically relevant interactions have been observed between rosuvastatin and either fluconazole (an inhibitor of CYP2C9 and CYP3A4) or ketconazole (an inhibitor of CYP2A6 and CYP3A4). Concomitant administration of itraconazole (an inhibitor of CYP3A4) and rosuvastatin resulted in a 28% increase in AUC of rosuvastatin. This small increase is not considered clinically significant. Therefore, drug interactions resulting from cytochrome P450-mediated metabolism are not expected.

DOSEAGE AND ADMINISTRATION:

Before treatment initiation the patient should be placed on a standard cholesterol-lowering diet that should continue during treatment. The dose should be individualised according to the goal of therapy and patient response, using current consensus guidelines.

Robust® may be given at any time of day, with or without food.
Treatment of hypercholesterolaemia:
 The recommended start dose is 5 mg or 10 mg orally once daily in both statin naive or patients switched from another HMG CoA reductase inhibitor. The choice of start dose should take into account the individual patient's cholesterol level and future cardiovascular risk as well as the potential risk for adverse reactions. A dose adjustment to the next dose level can be made after 4 weeks, if necessary. In light of the increased reporting rate of adverse reactions with the 40 mg dose compared to lower doses, a final titration to the maximum dose of 40 mg should only be considered in patients with severe hypercholesterolaemia at high cardiovascular risk (in particular those with familial hypercholesterolaemia), who do not achieve their treatment goal on 20 mg, and in whom routine follow-up will be performed. Specialist supervision is recommended when the 40 mg dose is initiated.

Prevention of cardiovascular events:
 The dose used is 20 mg daily.

Paediatric population:
 Paediatric use should only be carried out by specialists.
Children and adolescents 10 to 17 years of age (boys Tanner Stage II and above and girls who are at least 1 year post-menarche)
 In children and adolescents with heterozygous familial hypercholesterolaemia the usual start dose is 5 mg daily. The usual dose range is 5-20 mg orally once daily. Titration should be conducted according to the individual response and tolerability in paediatric patients, as recommended by the paediatric treatment recommendations. Children and adolescents should be placed on standard cholesterol-lowering diet before rosuvastatin treatment initiation; this diet should be continued during rosuvastatin treatment. Safety and efficacy of doses greater than 20 mg have not been studied in this population.

The 40 mg tablet is not suitable for use in paediatric patients.
Children younger than 10 years
 Experience in children younger than 10 years is limited to a small number of children (aged between 8 and 10 years) with homozygous familial hypercholesterolaemia. Therefore, **Robust®** is not recommended for use in children younger than 10 years.

Use in the elderly:
 A start dose of 5 mg is recommended in patients > 70 years. No other dose adjustment is necessary in relation to age.

Dosage in patients with renal insufficiency:
 No dose adjustment is necessary in patients with mild to moderate renal impairment. The recommended start dose is 5 mg in patients with moderate renal impairment (creatinine clearance of <60 ml/min). The 40 mg dose is contraindicated in patients with moderate renal impairment. The use of rosuvastatin in patients with severe renal impairment is contraindicated for all doses.

Dosage in patients with hepatic impairment:
 There was no increase in systemic exposure to rosuvastatin in subjects with Child-Pugh scores of 7 or below. However, increased systemic exposure has been observed in subjects with Child-Pugh scores of 8 and 9. In these patients an assessment of renal function should be considered. There is no experience in subjects with Child-Pugh scores above 9. Rosuvastatin is contraindicated in patients with active liver disease.

Race:
 Increased systemic exposure has been seen in Asian subjects. The recommended start dose is 5 mg for patients of Asian ancestry. The 40 mg dose is contraindicated in these patients.

Dosage in patients with pre-disposing factors to myopathy:
 The recommended start dose is 5 mg in patients with predisposing factors to myopathy.
 The 40 mg dose is contraindicated in some of these patients.

OVERDOSAGE:
 There is no specific treatment in the event of overdose. In the event of overdose, the patient should be treated symptomatically and supportive measures instituted as required. Liver function and CK levels should be monitored. Haemodialysis is unlikely to be of benefit.

PRESENTATIONS:
Robust® 10 Film Coated Tablets: Packs of 30 and 500 tablets. Each tablet contains 10 mg Rosuvastatin (as rosuvastatin calcium).
Robust® 20 Film Coated Tablets: Packs of 30 and 500 tablets. Each tablet contains 20 mg Rosuvastatin (as rosuvastatin calcium).
Robust® 40 Film Coated Tablets: Packs of 30 and 500 tablets. Each tablet contains 40 mg Rosuvastatin (as rosuvastatin calcium).

STORAGE CONDITIONS:
 Store below 30°C.

This is a medicament

- Medicament is a product which affects your health, and its consumption contrary to instructions is dangerous for you.
- Follow strictly the doctor's prescription, the method of use, and the instructions of the pharmacist who sold you the medicament.
- The doctor and the pharmacist are experts in medicine, its benefits and its risks.
- Do not, by yourself, interrupt the period of treatment prescribed.
- Do not repeat the same prescription without consulting your doctor.

